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EDITORIAL ANALYSIS

Count the Forest, Not the Saplings: Rethinking Mangrove Restoration

 DOWN TO EARTH

18 July 2026 ·

ENVIRONMENT

GS3

GS1

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GS3

GS1

✓ Every fact web-verified against primary sources

THE LIFT LINE

A photograph of thousands of mangrove saplings pressed into a mudflat makes for a satisfying press release. Two monsoons later, if the tide never reaches them and the species were wrong for the site, most are dead and the release is forgotten. **Gujarat's Sat Saida Bet** offers the opposite lesson: restoration succeeds when it rebuilds a **functioning forest**, not when it maximises a planting count. The measure of a mangrove project is survival, biodiversity and ecosystem function, not the number on the inauguration board.

WHY THIS EDITORIAL MATTERS FOR YOUR EXAM

Mangroves are among the most exam-relevant ecosystems because they sit at the crossroads of ecology, climate **mitigation**, disaster management and coastal geography. This editorial gives you a way to write about restoration critically, distinguishing genuine ecological recovery from plantation theatre, which is exactly the analytical edge examiners reward.

GS Paper 3: conservation, environmental degradation, climate mitigation and disaster management. **GS Paper 1:** coastal geography, geomorphology and the physical dynamics of deltas and mudflats.

For **Prelims**, hold the specifics: mangroves are **blue-carbon** ecosystems (carbon stored in coastal and marine vegetation) and natural **bio-shields** against cyclones and storm surge; the **MISHTI** scheme, Mangrove Initiative for Shoreline Habitats and Tangible Incomes, was announced in the **2023-24 Budget** and launched in **2023**; the **Sundarbans** is India's largest single mangrove block, a **Ramsar site** and a **UNESCO World Heritage Site**; and coastal mangroves are regulated under the **Coastal Regulation Zone (CRZ)** framework. Note the difference between **ecological restoration** (rebuilding a self-sustaining ecosystem) and **plantation monoculture** (a single species planted for a target).

For **Mains**, argue that hydrological connectivity and community stewardship matter more than sapling counts.

BACKGROUND AND CONTEXT

India has expanded mangrove ambition considerably, with MISHTI targeting restoration across states along both coasts and marine ecosystems more broadly. The political appeal is obvious: mangroves **sequester** carbon at rates far above most terrestrial forests, buffer coastlines against cyclones, and support fisheries that sustain coastal livelihoods. But ambition measured in hectares planted can quietly reward the wrong behaviour. If a scheme is scored by saplings put in the ground, agencies plant densely, often with a single hardy species, on any available mudflat, whether or not the tidal hydrology can keep those plants alive.

Sat Saida Bet, a restored mangrove island in Gujarat, became a reference precisely because it inverted this logic. The work there prioritised restoring tidal water flow, matching species to salinity and elevation, and involving local communities in long-term care. The result was not the biggest planting figure but a forest that took root, diversified and began functioning as habitat.

THE CORE ARGUMENT / ISSUE

Hydrology decides survival

A mangrove is a creature of the tide. Without the right frequency and duration of tidal flooding, propagules cannot establish, and even planted saplings drown or desiccate. The single largest predictor of restoration success is not how many were planted but whether the site's **hydrological connectivity**, its creeks and channels, was restored first. Digging and reopening tidal channels is unglamorous and rarely photographed, yet it does more for survival than any planting drive.

Function over form

A functioning mangrove is judged by living metrics: sapling survival rates, canopy establishment, return of fish and crab nurseries, bird use and measurable carbon accumulation in the sediment. A **native-species mix** matched to local conditions builds **resilience**; a monoculture is brittle and offers thin biodiversity. Restoration that optimises for a planting target risks producing green cover that is ecologically hollow.

What to measure

METRIC	PLANTATION-COUNT LOGIC	FUNCTIONING-FOREST LOGIC
Headline indicator	Saplings planted / hectares covered	Multi-year survival and canopy
Species approach	Single hardy species, dense	Native mix matched to site
Site preparation	Minimal, plant on any mudflat	Restore tidal hydrology first
Community role	Wage labour for planting day	Long-term stewardship and protection
Success signal	Inauguration photograph	Returning fisheries, carbon, birds

The contrast is the whole argument. The left column produces numbers; the right column produces forests.

HOW TO THINK ABOUT THIS (ANALYTICAL FRAME)

Apply an **outcome-versus-output** lens. Outputs (saplings planted, hectares notified) are easy to count and easy to game. Outcomes (survival, biodiversity, carbon, coastal protection) are harder to measure but are the only things that matter ecologically. Sound policy shifts incentives from output targets to outcome verification, funding projects on multi-year survival audits rather than on planting-day tallies. Add a stewardship dimension: mangroves survive where the communities living beside them have a livelihood stake in protecting them.

THE DIAGRAM IN WORDS

Restore tidal hydrology -> match native species to salinity and elevation -> plant into a living system -> community stewardship over years -> survival, biodiversity and blue-carbon accrue -> functioning bio-shield reduces coastal disaster risk

WAY FORWARD

- ❶ **Fund outcomes, not outputs.** Tie **disbursement** to multi-year survival and biodiversity audits rather than to saplings planted, so agencies are rewarded for forests that live, not photographs taken.
- ❷ **Hydrology first.** Mandate restoration of tidal channels and creek connectivity before any planting, since water flow, not sapling density, determines whether a site can support mangroves at all.
- ❸ **Native mixes over monocultures.** Require species selection matched to local salinity, elevation and sediment, building biodiverse and resilient stands instead of brittle single-species plantations.
- ❹ **Embed community stewardship.** Give coastal communities a durable livelihood stake through fisheries and eco-services, so protection continues long after the funding cycle ends.

PYQ LINKAGE AND PRACTICE

UPSC Prelims has repeatedly tested **blue carbon**, Ramsar sites and mangrove distribution, while Mains has probed coastal ecosystems and disaster mitigation, including a 2021 question on the role of mangroves in coastal protection. This editorial arms you to critique restoration quality, not merely describe mangrove benefits.

Practice question: “Mangrove restoration must be measured by the functioning forest it creates, not the saplings it plants.” Critically examine, using recent restoration experience. **(15 marks, 250 words)**

Sources: Down To Earth, MISHTI, Ministry of Environment, Forest and Climate Change

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